

REMARKS

Claims 1-10 and 14-20 are now pending in the application. Claims 1 and 14 stand rejected under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirements; Claims 2-10 and 15-20 are rejected as being dependent on rejected claims; Claims 1, 5, and 9-10 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent 5,584,897 to Christianson et al. ("Christianson"); Claims 1-2, 6-8, 14 and 17-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent 5,271,300 to Zurbuchen et al. ("Zurbuchen"); Claims 3-4 and 15-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent 5,271,300 to Zurbuchen et al. ("Zurbuchen"); Claims 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent 5,271,300 to Zurbuchen et al. ("Zurbuchen") in view of the Mechanical Engineer's Handbook. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

SPECIFICATION

Applicants have amended the Specification to conform the specification with the claims. Such amendments do not introduce new matter into the specification, but further define the invention. Therefore, entry of these minor amendments is respectfully requested.

REJECTION UNDER 35 U.S.C. §112

Claims 1 and 14 stand rejected under 35 U.S.C. §112, first paragraph. Dependent claims 2-10 and 14-20 are rejected as being dependent on rejected claims. These rejections are respectfully traversed.

Written description for the phrases “at least one complete loop” and “circumscribing said periphery” used in claims 1 and 14 is found in amended paragraph [0016] and [0021]. “Each component contains at least one complete and preferably several very large loops of continuous fibers” paragraph [0016], lines 5-6; “Continuous fiber laminate layers 24 forming at least one complete fiber loop circumscribing the periphery 42 of the structure” paragraph [0021], lines 4-5. Support for the changes to the specification can be found in the originally filed specification on page 4 in paragraph 0016 at lines 6 and 7 with “...each component contains very large loops of continuous fibers which are incorporated into the load bearing portions of the structure”; at page 6 in paragraph 0020 at lines 8 to 10 with “After being cured and shaped by the mold, these large loops will become the load bearing portions of the assembly”; at page 2 in paragraph 0006 at lines 13 and 14 with “Forming a loop structure with the coated glass fibers wherein the fibers are generally parallel”; and at page 7 in paragraph 0021 at lines 2 to 5 with “Shown is a spanner bar 40, which is designed to take a compressive as well as tensile loads. The spanner bar 40 has a plurality of continuous fiber laminate layers 24 generally surrounding the periphery 42 of the structure.” In light of these amendments, claims 1 and 14, and by dependency, claims 2-10 and 14-20, respectively, are described and supported in the Specification. Therefore, reconsideration and withdrawal of these rejections are respectfully requested.

REJECTION UNDER 35 U.S.C. §102

Claims 1, 5, and 9–10 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent 5,584,897 to Christianson et al. (“Christianson”). This rejection is respectfully traversed.

Independent claims 1 and 14 have been amended to provide that the coil of laminate material defines the periphery for a primary load bearing portion and the primary load bearing portions are configured to define the lines of stress of the composite.

Applicant respectfully points out that support for such amendment was sufficient prior to the present amendments to the specification. It is sufficient written description to include an example containing the claim limitations. *MPEP 2163 (II)(A)(3)(b)*. Referencing a vehicle suspension example comprising an I-beam with top and bottom portions connected by a spanner, the example in the specification on page 6 paragraph [0020] states, “it is envisioned that a majority of the load will be taken by the top and bottom portions of the I-beam construction.” This demonstrates that there is a load differential between the top and bottom portions of the I-beam and an spanner such that the primary or majority of the load is placed on the top and bottom of the I-beam. Amendments to Claims 1 and 14 are defined and further supported by the amended specification page 4 in paragraph [0016].

Christianson is directed to a method for making an endless coated abrasive article for sanding, grinding and polishing surfaces. The article is a flexible coated abrasive belt made from a supporting sheet joined at opposite ends to form the endless backing sheet or belt. Column 3, line 62 to column 4, line 5. The belt is coated with a

binder and fibrous reinforcing material placed in a plurality of revolutions around a sheet. Column 4, lines 7-15. The belt is then coated with abrasive particles. Column 4, lines 22-25. Christianson specifically teaches flexibility of the belt and the fibrous reinforcing material. "Preferably, the reinforced backing structures, and spliced endless coated abrasive belts incorporating the same, of the present invention are sufficiently flexible to withstand grinding conditions. By "sufficient flexibility" and variants thereof in this context, it is meant that the reinforced backing structures, and spliced endless coated abrasive belts, will flex or bend under typical grinding conditions and return to their original shape without significant permanent deformation." Column 12, lines 20 to 25. Furthermore, the belt is sufficiently flexible to be used on a two or more roller mount or a pulley mount. Christianson does not teach or disclose using large resin loops (Figure 2, element 30) where the loops comprise vinyl ester, discontinuous fibers and chopped fibers and the resin loops are arranged such that at least one discontinuous fiber forms one complete loop around the composite.

Insofar as the cited reference does not suggest the invention of Claim 1, as amended, Applicants believe that independent Claim 1 and, by dependence, Claims 5 and 9 – 10 are now distinguished from the prior art, and that, accordingly, the rejections under 35 U.S.C. §102(b) should be withdrawn. Consideration and action in that regard is respectfully solicited.

Claims 1–2, 6-8, 14 and 17-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent 5,271,300 to Zurbuchen et al. ("Zurbuchen"). Zurbuchen is directed to a composite hand tool. The composite components or "mold charge" include a thermoset polymer and glass fibers. Column 5, lines 19-20 and

Column 4, lines 4-8. The tool has a core or handle and a work piece receiving portion. The core (wrench handle), is primarily formed from chopped random-oriented glass fibers and vinyl ester. Column 4, lines 14-17. The work piece receiving portion (box head end of a wrench) is generally formed using the core material. Column 5, lines 36-39. The core is surrounded by a unidirectional fiber-reinforced material made from continuous glass-fibers and vinyl ester. Column 4, lines 20-22. Support for the box openings includes using of several materials including the core materials reinforced with additional unidirectional fiber reinforcing material looped around the interior walls of the box openings. Column 6, lines 17-22. Zurbuchen does not teach or disclose having work piece receiving portions or working ends supported by a resin loop comprising vinyl ester, discontinuous fibers and chopped fibers such that the materials on the both the interior walls and exterior portions are the same.

Insofar as the cited reference does not appear to suggest the invention of Claims 1 and 14, as amended, Applicants believe that independent Claims 1 and 14, and, by dependence, Claims 2 and 6-8 and 17-20, respectively, are now distinguished from the prior art, and that, accordingly, the rejections under 35 U.S.C. §102(b) should be withdrawn. Consideration and action in that regard is respectfully solicited.

REJECTION UNDER 35 U.S.C. §103

Claims 3-4 and 15-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zurbuchen. This rejection is respectfully traversed.

Reference is respectfully drawn to the discussion of amendments and the Zurbuchen reference in remarks directed to the 35 U.S.C. §102(b) rejections.

The teachings of Zurbuchen would not lead one skilled in the art to Applicant's range of chopped fibers. Zurbuchen clearly teaches that the placement of the materials and the amount of materials used is critical to the production of the device. "The characteristics of the mold charge include weight, shape, and relative placement of the materials used. The following details of the wrench mold charge are CRITICAL to the production of the composite wrench: 1) the placement of the materials in the mold; 2) the size and shape of the wrench being molded; 3) the amount of material used; and the position of the material in the mold and during the molding process." Column 5, lines 20-28. Zurbuchen emphasizes that fiber orientation in the core imparts specific qualities to the device including "insur[ing] that an adequate level of isotropy exists in order to handle multi-directional loading". Column 4, lines 25-28. One would have to eliminate the chopped fibers from the core of the Zurbuchen device, transfer them into and integrate them with the periphery containing the discontinuous fibers and then select Applicant's ranges of chopped fibers. This goes far beyond manipulating ranges and numbers to discover an "optimum value of a result effective variable" and requires a complete disregard of the Zurbuchen teachings and suggestions.

Claims 19 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Zurbuchen in view of the Mechanical Engineer's Handbook. These rejections are respectfully traversed.

The combination of Zurbuchen and the Mechanical Engineer's Handbook fails to teach Applicant's invention. As stated above, Zurbuchen fails to suggest or teach the combination of vinyl ester, chopped fibers and continuous reinforcing fibers to form layers of materials formed into large loops forming the primary load bearing surface.

Although the Mechanical Engineer's Handbook may provide guidance as to the specific materials forming the composite, it does not provide instruction as to orientation or combinations of fibers. The combination of the Zurbuchen reference and the Mechanical Engineer's Handbook does not suggest or teach Applicant's composite of large loops of vinyl ester, chopped fibers and continuous reinforcing fibers arranged such that the discontinuous loops are parallel to each other.

Insofar as the cited references either (a) do not appear to suggest the invention of Claims 1 or 14 as amended or (b) teach away from the invention of Claims 1 or 14 as amended, Applicants believe that, in dependence to the amended independent claims, Claims 3-4 and 15-16 are now patentably distinguished over Zurbuchen, Claims 19 and 20 are now patentably distinguished over Zurbuchen in view of the Mechanical Engineer's Handbook, and that, accordingly, the respective rejection under 35 U.S.C. §103(a) should be withdrawn. Consideration and action in that regard is respectfully solicited.


CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1243.

Respectfully submitted,

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